

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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## PCT

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) **11 OCTOBER 2004 (11.10.2004)**

Applicant's or agent's file reference  
2004OC-715KR

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
**PCT/KR2004/001610**

International filing date (day/month/year)  
**01 JULY 2004 (01.07.2004)**

Priority date(day/month/year)  
01 JULY 2003 (01.07.2003)

International Patent Classification (IPC) or both national classification and IPC

**IPC7 F04D 29/54**

Applicant

**HALLA CLIMATE CONTROL CORPORATION et al**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



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**WRITTEN OPINION OF THE  
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**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	1-7	YES
	Claims		NO
Inventive step (IS)	Claims	1-7	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

**2. Citations and explanations :**

Reference is made to the following documents:

D1: US 6,398,492 B1

D2: JP 10-205497 A

**1. Novelty and Industrial Applicability**

Claims 1 to 7 meet the criteria for novelty and industrial applicability.

**2. Inventive Step**

The present application is concerned with an guide blades of an axial flow fan shroud for guiding the air blown by an axial flow fan in an axial direction, and more particularly, to a guide blade structure capable of preventing high temperature heat generated by an engine room from flowing backward to a condenser.

D1 relates to an airflow guide vane for an axial flow fan capable of guiding air having dimensional velocity components along an axial direction, and a shrouded axial flow fan assembly having such airflow guide vanes.

D2 is to eliminate the inconvenience of a reduction in a capacity by providing an airflow direction changing plate in the rear side of a fan in a cooling air introducing/discharging device added to a radiator or the like of an automobile and composing this wind direction changing plate of a number of radial direction fixed blades having slippage angles in a fan rotation direction side.

(Continued on Supplement Sheet.)

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**Supplemental Box**

**In case the space in any of the preceding boxes is not sufficient.**

Continuation of :

**Box V.**

The following are comparisons between claim 1 and the cited documents D1 and D2:

One of the problems to be solved by claim 1 is similar to the problem to be solved by D1 and D2 in that they all specify the direction of installation of a guide vane of a shroud in order to increase the axial blowing efficiency of an axial-flow fan. However, claim 1 is different from D1 and D2 in that in claim 1, the angle of projection of the guide vane with respect to the axial line is gradually increased as it approaches the tip, while in D1 and D2, the angle of projection is uniform. Neither D1 nor D2 can produce the effect of the present invention resulting from said difference, that is, the effect for preventing high temperature heat generated by an engine room from flowing backward to a condenser. Therefore, the subject matter of claim 1 is considered to involve an inventive step in view of D1 and D2.

Claims 2 to 7 are dependent on claim 1. Since the subject matter of claim 1 is considered to involve an inventive step, the subject matter of dependent claims 2 to 7 is also considered to involve an inventive step.